

IMAGINE MARS WEB CAST

ACTIVITY GUIDE FOR ADVANCE STUDY

The **Imagine Mars Project** is a national arts, sciences and technology education initiative that has harnessed America's fascination with space and led young people to work together with educators and civic leaders to design a future Mars community.

As part of the **Imagine Mars Project**, educators and students are invited to take part in a special Imagine Mars interactive Web cast with Emmy Award-winning performers Bill Nye, The Science Guy, and choreographer Debbie Allen leading an exploration of what community might be like on Mars.

After exploring the impact of gravity and other environmental and scientific considerations, renowned choreographer Debbie Allen will lead students through an interactive exercise about movement on Mars. Teachers and students can prepare for this fun and educational event by exploring some or all of the questions in the following activity guide for advance study.

1. What is Mars like?

Topics to explore:

- The atmosphere
- The surface of Mars
- The near-Mars surface
- Chemistry on Mars
- Energy on Mars
- Indigenous life on Mars

Consider this:

Of all the planets in our solar system, Mars is the most like earth. With a thin atmosphere, weather, seasons, and 25-hour days, Mars has a diverse and complex surface, including ice and winding channels made by flowing water in the distant past. Although the cold, dry conditions on Mars may not support life now, scientists believe that Mars was warmer, wetter, and had a much denser atmosphere early in its history. Life may have arisen in ancient Martian lakes or

Resources for more exploration:

- NASA Mars Exploration Program – <http://mars.jpl.nasa.gov/>
- NASA Center for Mars Exploration – <http://cmex-www.arc.nasa.gov/CMEX/index.html>
- Mars Planet Profile – <http://pds.jpl.nasa.gov/planets/welcome/mars.htm>



<http://ImagineMars.jpl.nasa.gov>

Imagine Mars is a national Arts, Sciences, Technology education initiative,
co-sponsored by NASA and the National Endowment for the Arts.



2. How might environmental and other conditions on Mars impact movement and performance?

Topics to explore:

- Impacts of gravity
- Impacts of the atmosphere and surface conditions
- Lighting and sound design
- Physical space needs for various types of dance
- Relationship of audience to artist

Consider this:

The force exerted on you and things around you by the weight of tiny particles of air (air molecules) is called air pressure. Although air molecules are invisible, they still have weight and take up space. Air pressure makes it possible to fly in airplanes and keeps our bodies from exploding! Earth's atmosphere is pressing against each square inch of you with a force of 1 kilogram per square centimeter (14.7 pounds per square inch)

Resources for more exploration:

- How Air Pressure Affects You – http://kids.earth.nasa.gov/archive/air_pressure/index.html
- American Museum of Natural History – <http://www.amnh.org/rose/mars/eggdrop.html>

3. What role will dance have in your future Mars community?

Topics to explore:

- Role of dance in past communities, societies and civilizations
- Role of dance in your community today
- Dance as communication in conveyance of thoughts, ideas and feelings
- Passing on and sharing of cultural traditions through dance
- Multicultural awareness and understanding
- Role of dance in future communities, including those in space

Consider this:

Charles A. Lindberg's historic flight in 1927 inspired a new dance – the Lindy Hop, in which couples dance to a swing beat, doing difficult movements with seeming effortlessness. "The core of the Lindy was the so-called 'break-away.' After doing a syncopated but flowing two-step together, the couples parted and went into solo improvisations to the same swinging beat..."

The Lindy Hop became mainstream after an organized group of dancers in 1935, known as Whitey's Lindy Hoppers, earned prizes at the First Harvest Moon Ball held at Madison Square Garden. The dancers were featured in a dance scene in the Marx Brothers' movie *A Day at the Races*, in which some of the aerobic "air steps" that the young dancers had perfected were called "jitterbugging."

Resources for more exploration:

- The Planetary Society Planetary Art Gallery – <http://www.planetary.org/learn/art/index.html>
- Planet Mars in Popular Culture – <http://humbabe.arc.nasa.gov/mqcm/fun/pop.html>
- The Changing Face of Tradition – <http://www.arts.gov/pub/Report38/ChangingPDF.html>

Continue your voyage by visiting the Imagine Mars Web site: <http://imaginemars.jpl.nasa.gov>